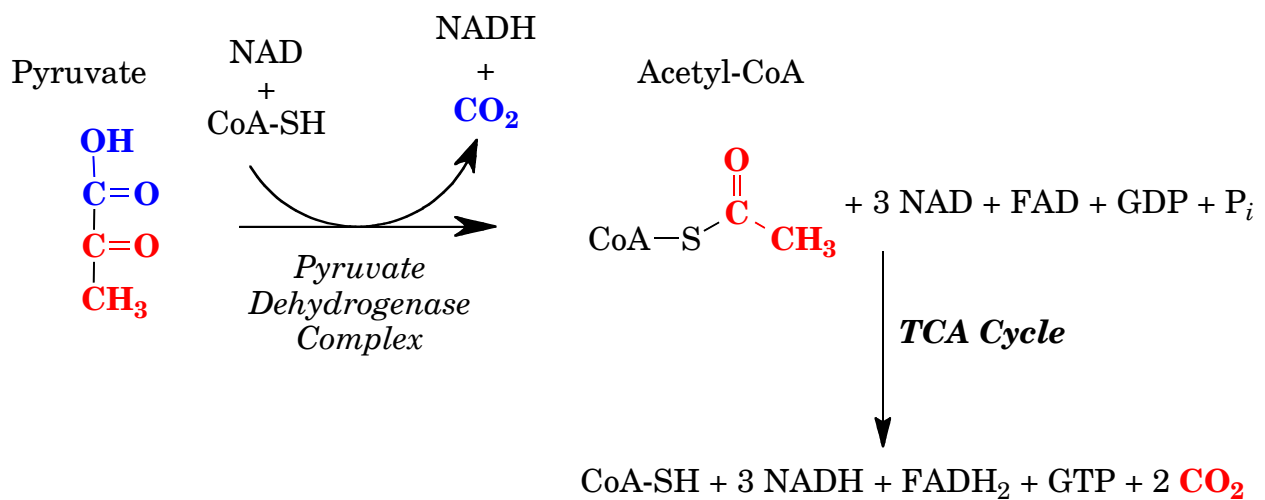
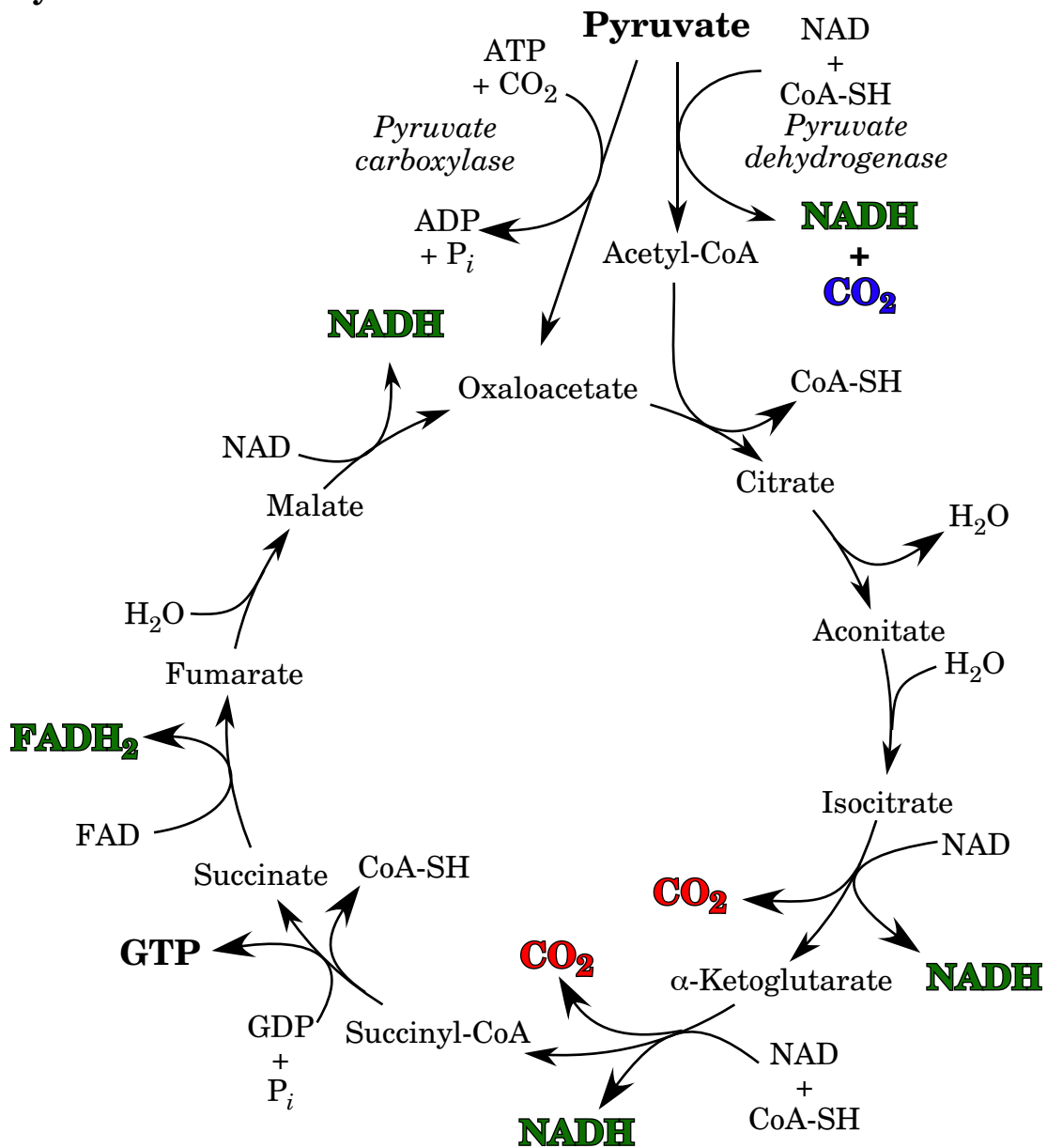
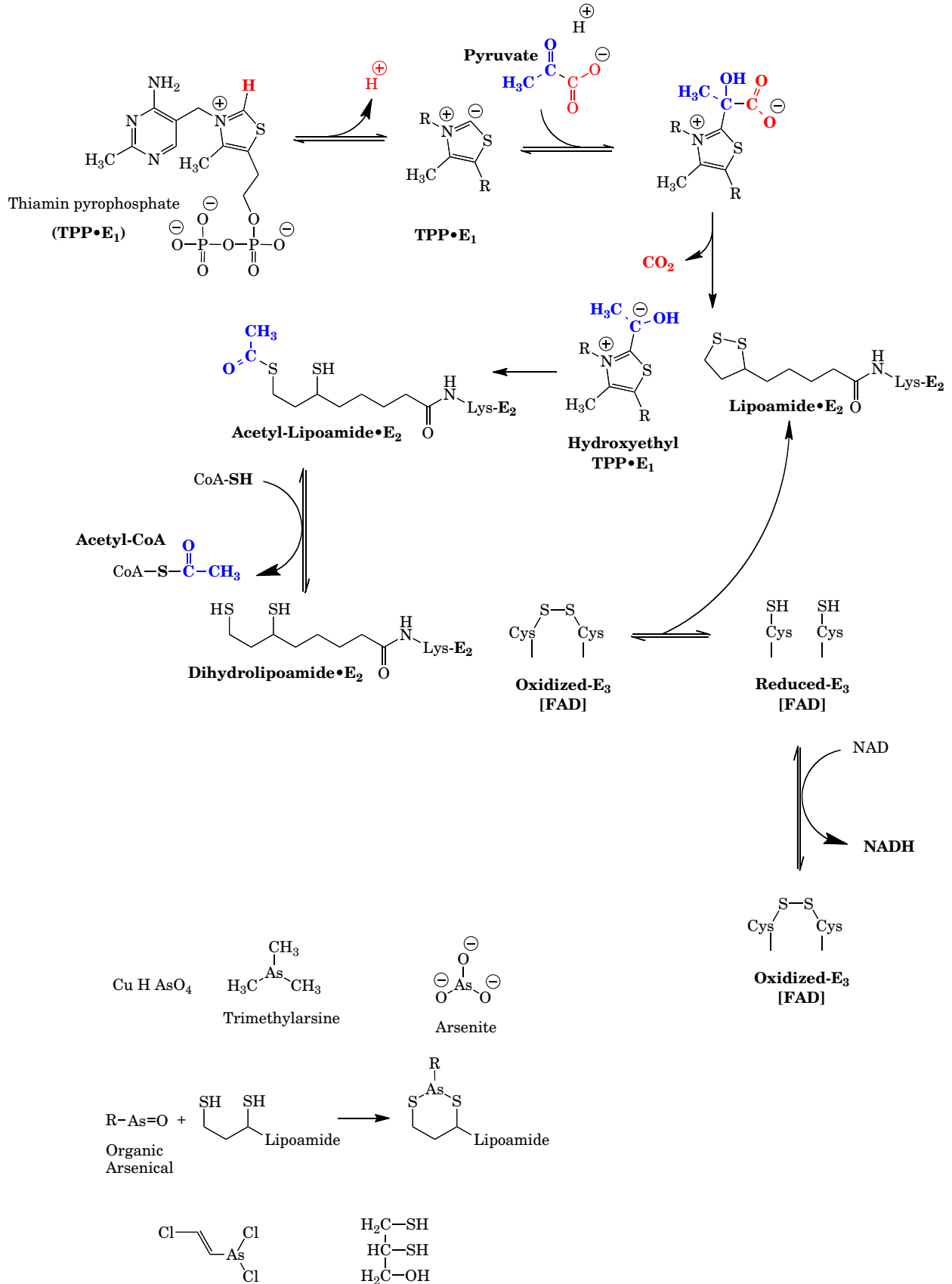


# Pyruvate Oxidation

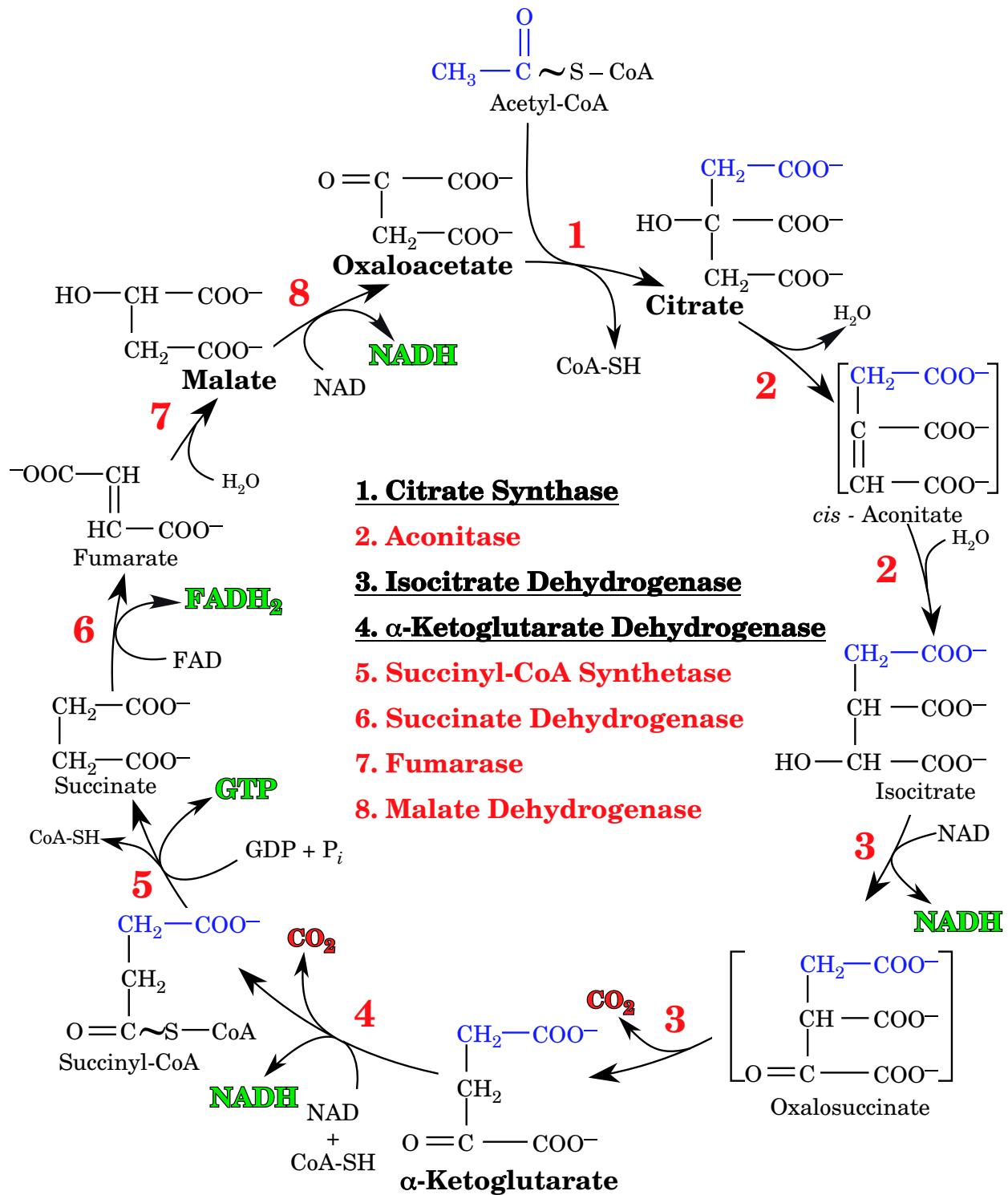




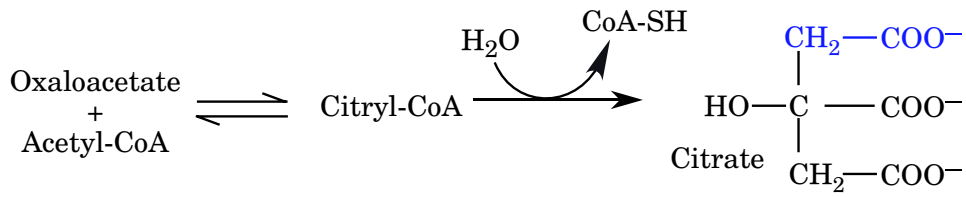
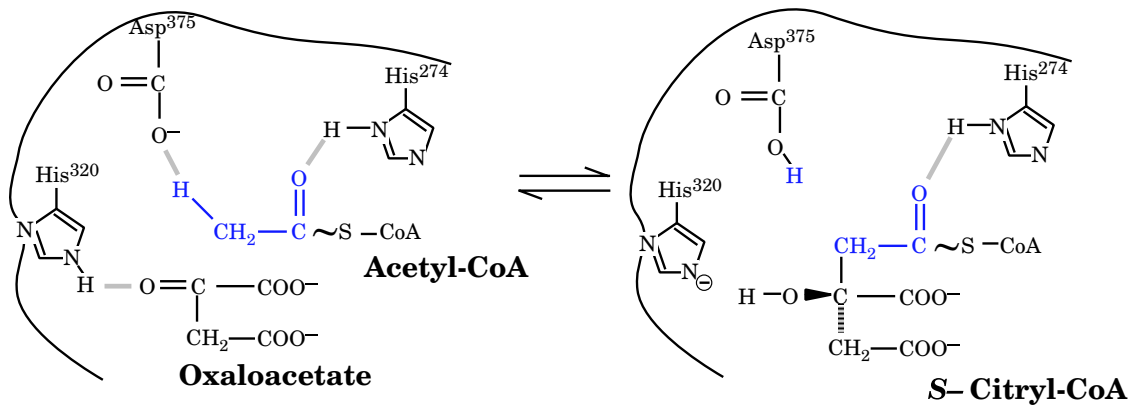
# Pyruvate Dehydrogenase Complex



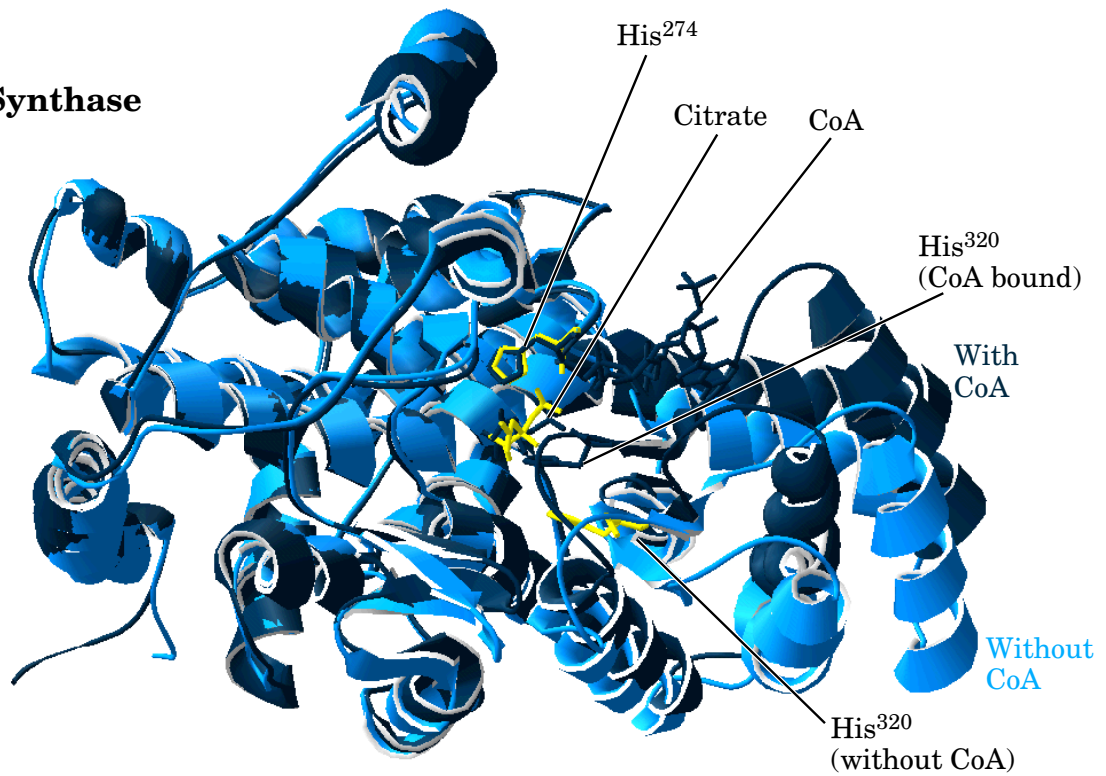
## Tricarboxylic Acid Cycle

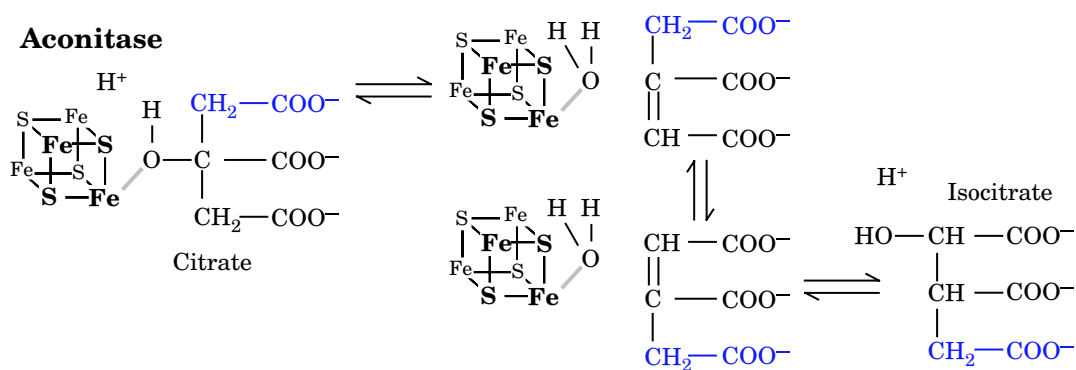


## Citrate Synthase

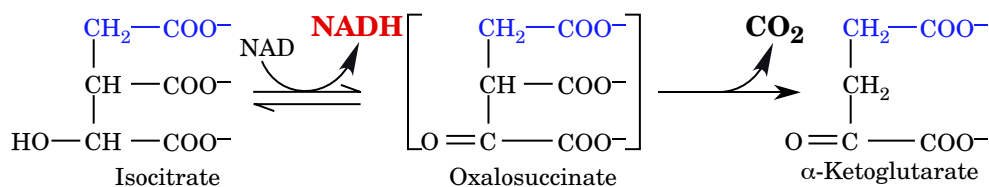


## Citrate Synthase

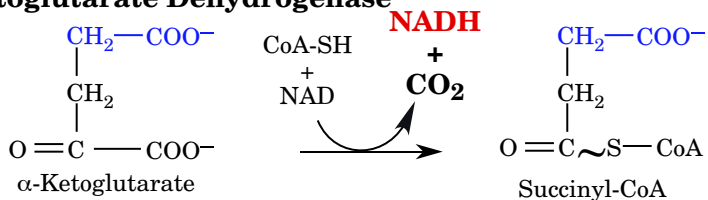




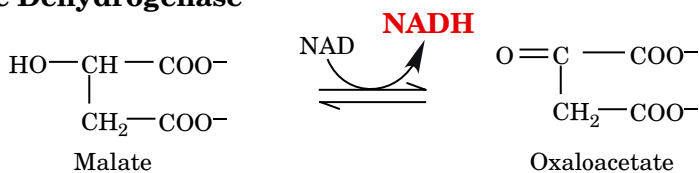
### Isocitrate Dehydrogenase



### $\alpha$ -Ketoglutarate Dehydrogenase



### Malate Dehydrogenase



Reaction	$\Delta G^{\circ}$ (kJ/mol)	Typical $\Delta G$ in cells (kJ/mol)
Acetate combustion	-849	
TCA cycle	-40	-115
<b><i>Citrate synthase</i></b>	<b>-31.4</b>	<b>-53.9</b>
Aconitase	+6.7	+0.8
<b><i>Isocitrate Dehydrogenase</i></b>	<b>-8.4</b>	<b>-17.5</b>
<b><i><math>\alpha</math>-ketoglutarate dehydrogenase</i></b>	<b>-30</b>	<b>-43.9</b>
Succinyl-CoA synthetase	-3.3	$\sim 0$
Succinate dehydrogenase	+0.4	$\sim 0$
Fumarase	-3.8	$\sim 0$
Malate dehydrogenase	+29.7	$\sim 0$

## Anaplerotic reactions

